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ABSTRACT

Following an overview of various theories of learning and of philosophies of education, this paper explores how to develop a culture-critical geography curriculum at any grade level. A culture-critical philosophy of education attaches particular importance to the dialogue between teacher and pupil and aims toward broadening and deepening the students' world of experience. Ideally, the students make clear their experiences, questions, and preliminary knowledge: then, the teacher offers an instructional program based on the existing curriculum, on a culture-critical view of the discipline, and on a syllabus specially designed to encourage student input into the course. For the culture-critical approach to succeed, two conditions must be met: (1) the content must be adapted to the students' needs and demands, and (2) themes included in the curriculum must be treated in a culture-critical way. With regard to geography, the paper suggests that the culture-critical view is particularly appropriate because the constant flux in the earth's surface and continual changes in individual and social evaluation of natural conditions contribute to wide variations in student perceptions of geographic concepts. The paper presents a six-theme matrix to help geography teachers as they develop culture-critical geography. Themes and major sub-topics are: (1) material resources of the earth--climate and weather, soil formation, geological structure: (2) living nature--plant and animal life, zones of vegetation: (3) human life--origin of human life, population, life in groups, wars and conflicts: (4) housing and welfare--provision for daily needs, schools, public utilities: (5) production and labor--agriculture, energy, industry: and (6) traffic and transportation--roads, railways, air-routes, telecommunication. (DB)

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THE SELECTION OF CONTENT IN GEOGRAPHICAL CURRICULUM DEVELOPMENT.

A contribution to the shaping of a culture-critical philosophy of education.

Discussion paper with limited distribution.

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1. Introduction

The educational geography section of the Institute of Geography and Spatial Planning of the University of Nijmegen (The Netherlands) would like to make a contribution to the development of geography-teaching. This intention makes itself felt both in the section's teaching responsibilities and in the research and development work, current as well as planned.
The teaching responsibilities include the pedagogical-didactic education of secundary school geography-teachers, as well as the development of skills with respect to geographical curriculum development. The research and development work contains two main tasks. In the first place it is the section's intention to gain insight in the possible contribution of geography to the teaching of educational aims. Education include formal as well as informal teaching (courses for adults and young people having a job) and information-processing (improving citizen-participation, choice of holiday destinations, images of world political events etc.). Secondly it would like to find an answer to the question how subject-specific aims can be adapted to the entering-situation of a target-group. The problem here is not only whether these aims are legitimate with regard to the interests and concerns of the members of the target-group, but also the answering of questions bearing on both development and learning-psychology and sociology of education.

Through the above responsibilities of theaching and research within the section runs the development of a philosophy of education of its own. This is referred to with the term 'culture critical'. The culture critical philosophy of education is still in a stage of development. This paper can be regarded as an interim report. Although its point of departure are related to educational processes in general, the substance mainly bears on formal education. In the first place attention is given to the aim of education as we see it, i.e. a culture-critical way of thinking and acting (paragraph 2). Next comes the contribution of geography to the reaching of this aim (paragraph 3) and finally we consider the way in which the culture-critical philosophy of education might be realized in practice, with specific reference to the task of teachers and curriculum developers. Also some attention is paid to the nature of a possible contribution of our section (paragraph 4).

2. Points of departure for culture-critical education

2.1. Image of man and philosophy of education.

People constantly get into situations that demand their reaction. This can be verbal (answering a question, giving an opinion), or motoric (kicking a ball) or simply take the form of an expressed feeling or conviction. Actual behaviour is a complex relation between (1) conscious and unconscious motives (2) opinions that are explicited but not necessarily expressed in words and (3) motoric activities (Hilgard et al, 1971).

To us a central question is in what way this behaviour is effected and how to process is influenced by education. It is our firm opinion that the answer to this question cannot be obtained exclusively by empirical research, but also depends on one's image of man. It is to the latter circumstance that we will pay attention first.

In thinking about the nature of man two ideal-typical distinctions cannot be ignored. They are:

1. The degree to which differences between human and animal action are thought important, especially the role attributed to man's intellectual faculties.
2. The classical opposition 'nature-nurture', i.e. the degree to which behaviour is considered genetically determined or acquired by learning.

The combinations of both distinctions produces a matrix in which the four 'classical' views of education can be arranged (fig. 1). The development of empirical research has been co-responsible for pointing out the one-sidedness of the views of education described in the above-mentioned matrix. However, together they may form a basis for a meaningful and valid theory of education. I have attempted a confrontation between the above views elsewhere (van den Bosch 1980). Here I limit myself to some conclusions that are important for the characterization of a culture-critical philosophy of education.

2.2. A pluriform theory of learning

Our knowledge, skills and values are to high degree acquired by learning. However, learning may mean many different things. Gagné, Guilford, Klausmeier and van Parreren, among others, must be given credit for having distinguished kinds of processes of learning (De Klerk 1971). The above educationalists attribute great pedagogical relevance to concepts, rules and theories derived from the scientific disciplines, contrary to the importance contributed to memorizing in earlier years. We will briefly comment of this.

Figure 1a Survey of classical views of education

	Accent on the genetically determined possibilities and their gradual development during growth
Accent on unique human (intellectual) characteristics	Education as 'self-development' Strong influence of the views of 'Gestaltpsychologie' (Wertheimer, Kofka, Köhler) and Piaget's theory of development. Pupils' intellectual faculties develop in an unvarying sequence of senso-motoric, concrete and formal thinking. It is primarily the role of education to create conditions for development.
Accent on emotional determinants of behaviour in man and animals.	Anti-autoritarian education Strongly based on pupils giving expression to their emotional experience of reality. Mostly influenced by the ideas of Rousseau and Freud. Education should enable pupils further to develop their feelings.

Figure 1B Survey of classical views of education

	Accent of 'tabula-rasa' character of man when born, and the importance of learning processes for development.
Accent on unique human (intellectual) characteristics	Classical ideal of education Mental faculties of man (reason, rhetoric, logic a.o.) should be developed by intensive training (faculty-psychology). Classical curriculum contained grammar, dialectics and rhetoric (trivium) and arithmetic, geometry, astronomy and music (quadrivium). The knowledge stored up in these has proved its value throughput the ages (perennialism).
Accent on emotional determinants of behaviour in man and animals.	Behaviouristic view of education Skills, knowledge and values are acquired through learning processes. The adequate rewarding of things ensures their being learned. (Thorndike: Law of Effect). Learning processes take care of the socialization of individuals and prevent anomy.

According to Bruner (1960, every pupil has in him of her the desire to discover the world. Education should 'discipline' this spontaneous process of discovery by teaching pupils to make use of a man's provided by the scientific disciplines. Ausubel (1963) building on Bruner's ideas, derived clues to the determination of the contents of education from the way in which information is stored in the memory of the pupils. This storage process he termed 'cognitive structure': 'an individual's organization, stability and clarity of knowledge in a particular subject-matter field' (Ausubel 1963, p. 26).

The most important characteristics of cognitive structure, also borne out empirically, are its hierarchy and clarity. These make it easier both to retain in one's memory old information, and assimilate any coming in fresh. Concrete concepts are subsumed under abstract ones and so create a coherent view of reality. Education is best suited to pupil's existing cognitive structure if the subject-matter is likewise structured hierarchically. Scientific knowledge possesses such a hierarchical structure. Reality can be interpreted adequately with the help of concrete, abstract and theoretical concepts, derived from the scientific disciplines. Apart from the rules contained in them, which apply to very specific cases, there are also thinking activities, with a more general use. These are termed respectively 'algorythms' and 'heuristics'. An example of the first is the theory of central places and of the latter the empirical cycle. Now it should be the aim of education to have pupils' cognitive structures gradually bear a greater resemblance to the structure of the disciplines. But it would be very wrong to transmit knowledge and insights derived from science directly to pupils, a method that was used in education according to the classical ideal. Scientific knowledge, on the contrary, should be transformed, and the new contents, called 'cognitive structures', be in accordance with possibilities, cognitive and affective, of the target-group. So it can be remarked that the central position occupied by 'learning' in the above view, does not necessarily lead to the memorizing of useless (factual) knowledge.

2.3. Accent on man as a whole

After that theoretical problems connected with learning having been touched upon in the last paragraph (right side of the matrix of fig. 1), now further attention is to be paid to the genetically determined possibilities of the individual (left

side of the matrix) and the way the two are related. The advocates of child-centered education (generally to be found at the left side of the matrix) were right to reproach those stressing the role of learning with regarding man at birth as a 'tabula rasa'. However, they went too far in their criticism, because they overestimated man's autonomous capacity for growth and wrongly equated learning with memorizing. The choice whether 'growth' or 'learning' should take up the central position in education implies a contrast between 'nature' and 'culture', which does not necessarily exist. Thinking of 'nature', the libidonal and aggressive instincts that Freud thought were the main (genetically determined) motives of human behaviour, are not the only things that present themselves to us. From the moment they are born, people (and animals too) are equipped with a number of emotions, such as love, fear, aggression, sexuality, playfulness, curiosy etc. These emotions serve 'the survival-related purpose of sensitizing the animal to certain classes of events and of calling forth, or making likely, certain classes of action' (Breger 1974, p. 25). In the case of the most primitive animal species these kinds of behaviour are purely instinctive. But as the species becomes more complex, and in the case of man, the role of learned behaviour correspondingly gains in significance. As far as we know only man is capable of conscious reflection, that is to say formulation of concepts, rules and theories in relation to reality. The knowledge, which was thus accumulated throughout the ages, serves the direct purpose of satisfying diverse human needs.

Acquisition of this knowledge therefore enables new generations to make use of the experience of those preceding them, and so need not be in conflict with the 'emotions' mentioned above at all. For the moment we assume that people are able to judge in how far certain educational contents form a contribution to the satisfaction of their needs. In other words we assume that learning-processes can cause agreement or rebellion in pupils depending on whether they are in accordance with their feelings, experiences and expectations. Therefore, at least in principle, we are in favour of turning these needs into an important criterion for use in the creation of learning situations in general, and the selection of subject-matter in particular, and of regarding education as a permanent dialoque between teacher and pupil. Rogers (1969), shows that such a point of departure immediately raises the motivation and achievement

of the pupils. This vision leads to the question of the nature of human needs. There have been a number of attempts to classify them, the best-known being that of Maslow (1970),
Freely based on his, is the following categorizing of needs:

-- Biological needs, i.e. needs directly related to the survival of the species and the individual;
-- Material needs, i.e. the building up and maintaining of a level of subsistence by performing labour;
-- Social needs, i.e. the necessicty and desire to live in groups;
-- Personal needs (self-realization), i.e. the striving after ethical and aesthetic meaningfulness.

2.4. Learning and alienation

The foregoining raises a number of questions. One of them is that human needs as actually perceived, in no way have to agree to the above supposed 'true' ones. This discrepancy is usually attributed to the interference of so-called mechanisms of displacement or defense, such as rationalization, regression, denial and projection. Such mechanisms prevent the emotional disturbances, that might arise if certain needs are not satisfied, from becoming manifest. They intervene between reality and its perception, and influence the latter in such a way, that the source of the threat is weakened. The result is that the individual's version of reality increasingly differs from the 'objective' one.This expresses itself in a considerable number of stereotypes. Bettelheim and Janowitz (in Allport 1963, p. 199) partly retrace racial discrimination to the majority projecting its suppressed sexual desires on a minority group, which ends up fulfilling a scapegoat function ('frustration-aggression-displacement-theory').
In connection with this the relevance of Marxist concept of ideology also must not go unnoticed. On the one side Marx's concept of ideology owes much to the supporters of a 'positive' science, but it also to a certain extent disagrees with it. According to Bacon, Comte and Feuerbach our knowledge of reality is obscured by idols of various nature. In connection with this Feuerbach discusses the role of religion, which he sees as a form of projection. Marx agrees with this, but states that the ideas obfuscating human consciousness are not just random ones. Their meaning can only be understood against the background of their social function, for instance the obscuring of the field of tension that exists in a capitalist society between property and the forces of production (Lenk, 1967, pp. 34-35). Surrogates

are offered for human needs that are not, or only partly, satisfied, such as reference to the here-after instead of immediate rewards for work done, or excessive consumption instead of granting people a real say in matters. A situation in which there is a discrepancy between manifest needs and supposedly 'true' ones is usually referred to with the term alienation.

A good example of educationally relevant research in the field of alienation problems is Paul Willis' study (1977), of 'school-counterculture' in the case of children of the lower classes (unskilled workers) in the big English cities.

This group is dominated by feelings of antipathy towards formal education. On the other hand a system of values develops, which can be shortly typified as materialistic, sexist, racist and primarily manual labour oriented. The paradoxical element in this situation is that these pupils' resistance to school is partly responsible for establishing a firm basis for their future adaptation to the existing (capitalist) society. Inversely proportioned to their antipathy towards school-learning, the children studied by Willis appeared to be motivated to collect knowledge of cars, motorbikes, music and in some cases, clothes. Teachers willing to adapt their efforts to such needs, relatively quickly experience the feeling that they are drifting away fast from what they themselves consider essential.

In our opinion Willis is right to relate the system of values of unskilled workers' children to their preparation for a position in society similar to that of their fathers. The fact that they can be said to form a rather extreme group does not mean that such phenomena cannot be perceived in the case of middle-class pupils, modified of course according to the conditions in their group. Generally these pupils show a much greater achievement motivation, i.e. a tendency towards social mobility, than in the case with the unskilled labour classes (Sampson, 1971). This, too, has its impact on education, and may explain the success of certain types of games, for instance 'Metfab'. Here also it is true that satisfaction of pupils' needs does not necessarily lead to satisfaction of the supposed 'true' ones. In the next paragraph we will try to find a way out of this dilemma.

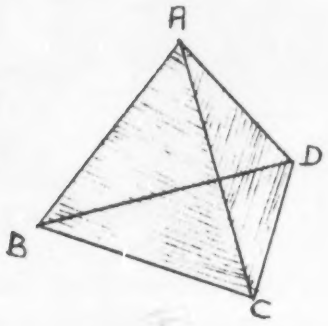
Figure 2A Survey of fundamental ways of approach towards reality

Fundamental categories of need	Ways of approach	Description of way of approach
Biological needs	Physical-biological way of approach	The aim to discover the immanent laws governing actual events. It is supposed that these laws are inherent to matter, and exercise their influence independently of human volition.
Material needs	Economic-rational way of approach	The aim to understand reality against the background of human efforts to use scarce resources as effectively as possible to realize aims of prosperity and welfare.
Social needs	Sociological-structuralistic way of approach	The aim to understand against the background of the rules, institutions and balances of power existing in interhuman relations, without the actors being necessarily aware of them.
Personal needs	Psychological-anthropological way of approach	The aim to understand reality against the background of existence being regarded as meaningful by acting subjects, subjectively, individually, or collectively. It is supposed that each individual has a free will, gives his own meaning to his existence and perceives reality in his own way.

Implicit value-judgment	Criterion used in judging culture	Applications in geography
The desirability of avoiding conflicts between human behaviour and physical and biological laws.	In how far does a culture justice to the existence of physical-biological laws	Research after geological, geomorphological and climactological processes and their influence on man; phenomena of human territories.
The desirability of economic-rational or effective action.	In how far does a culture lead to the efficient handling of scarce resources.	Research after conditions for economic development and spatial differences in economic growth; the role of distance; assignment of tasks and increase of scale.
The desirability of social quality and reciprocity group-processes on different scales	In how far does a culture cause unequal social relations, or maintain them.	Research after social-political systems and the spatial arrangement resulting from these; conflicting interests in urban land-use; territorial re-division and democratization.
The desirability of a tolerant attitude in judging human behaviour	In how far does a culture justice to the principle of pluriformity; does it tolerate diverse interpretations of reality.	Research after cultural areas, national consciousness, cultural landschape-approach, study of 'way of life', perception-approach.

is indicated in column 1. Furthermore, if it is true that a balanced development of personality demands that each of the four categories of needs be satisfied adequately, in effect this constitutes an argument in favour of gradually familiarizing people with the four ways of approach, distinguished by us. To put it differently, we suppose that excessive stress on one particular way of approach leads to fixation on the corresponding category of need, and this could be one of the courses of the problem of alienation mentioned above. This view is further elucidated below. The ways of appraoch, distinguished in fig. 2 are all part of Western culture and so are also one of the factors shaping it. For instance, structural housing shortages and unemployment are commonly justified by reference to the economic-rational way of appraoch. However, it is also possible to interpret that phenomena against the background of a sociological-structuralistic one. In this case the perspective of efficiency is replaced by that of social equality. The fact that the latter perspective is less accepted in judging umemployment is possibly related, with regard to this and similar problems, to the fact that the existing order might feel threatened by it. Thus it is possible to defend the proposition that in practice there has grown a more or less firm relation between the various ways of approach on the one side and certain categories of problems on the other. This might become clear if one imagines the four ways of approach as spot-lights, each being different colour and lighting a different part of a circus floor (reality). The floor thus lighted forms the image transmitted to people within a specific culture, education being one of the transmittors. But this image does not necessarily lead to the adequate satisfaction of needs, if people adopt it as the basis for their behaviour. Now we would like to fit out the various spot-lights with dimmers, and convince pupils that the interpretation of reality is often the result of (laborious) confrontation between different ways of approach. In other words, the various ways of approach do not agree very well. This view is illustrated in fig. 3; the angular points of the pyramidal figure represent the four ways of approach.

Fig. 3. The tension-field model.



A. Physical-biological way of approach
B. Economic-rational way of approach
C. Sociological-structuralistic way of approach
D. Psychological-anthropological way of approach.

The tension-field model serves the purpose of not immediately accepting the perceptions of reality current within a certain culture, but to subject them to a re-interpretation starting from one or more interpretations that are not current, or less so. By making pupils experience the interpretation of reality as a continuous weighing-out process, we hope to reach a state in which the final resulting world-picture is in optimal accordance with the satisfaction of their needs and also adequately explains the fact that certain needs are not, or only partly satisfied. As the view of education advocated by us envisages pupils being stimulated and equipped to reflect on their culture, meaning the interpretations of reality accepted in the group they belong to. This formulation leaves us with only a global philosophy of education, and therefore, to end the paragraph, we would like to make a first move towards further realization. The contribution of geography will be discussed in paragrapf 3, followed by a comment on educational practice in paragraph 4.

2.6. Points of departure of culture-critical education

In the above, education was described as a dialogue between teacher and pupil on a basis of equality. It was stated that, as a point of departure for learning situations, the pupil's actual needs, experiences and feelings were to be respected, but that is the teacher's task to 1) transmit the knowledge pupils have at their disposal in order to be able to satisfy their needs, and 2) to confront pupils with the possible

'falseness' of their needs, and create conditions for the satisfaction of 'true' ones. With respect to the first task stress was laid on the importance of scientific concepts, rules and ways of thinking; with respect to the second attention was drawn th the need for confrontation between various scientific ways of approach, when solving problems. Such a formulation distinguishes the culture-critical philosophy of education both from the ' child-centeres' thinking of the'Progressive Education Movement' that put too heavy an accent on the pupil's autonomous possibilities of growth, and scientific-structural thinking, which neglects the subjective basis and its resultant pluriformity in scientific thought.
This pluriformity is the corner-stone of the culture-critical philosophy of education.
The situation we would like to see is admirably pictured in the model of Walberg and Thomas (1975, p. 144) (fig. 4).

Figure 4. The degree of contribution of pupil and teacher

Pupils are expected to make a considerable contribution, while the teacher keeps very much in the background. This ratio of contribution soon causes a laissez faire situation to arise.	High	Pupils are constantly stimulated to make their own contribution; independently of this the teacher formulates his own aims. Classroom practice is the result of negotiation.
The teacher confines himself to the passing on of information from the books, or the operating of learning-machines. These strongly programme pupils' behaviour.	Low	The teacher is active, functions as a 'director' of the learning situation. Pupils 'absorb' the information offered (frontal teaching).

Low — Contribution of the teacher — High

Contribution of the pupil

Learning situations can be characterized by the degree of contribution of teacher, as well as pupil. Ideal-typically this can be small or intensive in both cases, it is possible to distinguish four situations. These are shown in figure 4 and provided with a short description of each. In the situation we favour the contribution of both teacher and pupils is considerable. Now we would like to comment briefly on the question how such a situation is to be realized.

Because of the importance the culture-critical philosophy of education attaches to the dialogue between teacher and pupil, the teaching programme and therefore the curriculum as well, should have a high degree of openess. To take pupils' needs, feelings and experiences as a point of departure expressly does not mean to jump chaotically from one question of a pupil to the next. We regard the determination of a culture-critical programme of education as a process of negociation between teacher and pupils. The main outlines are fixed once or twice a year. It is then that the children make clear their preferences and interests, and the teacher comes up with possibilities to meet them. Of course the teacher must reckon with a number of marginal conditions, such as school-certificate requirements, time-table, finances, as well as his own aims, in this case making a contribution to the development of culture-critical thinking and acting in the pupils. The result might be an agreement with regard to the treatment of certain themes and problems, or the undertaking of certain projects.

Prior to the beginning of such a project or the treatment of such a theme, a brainstorming session may be held with the aim to explicit pupils' expectations and wishes in a more detailed manner. The teacher can also use a questionaire or role-playing in order to measure their preliminary knowledge and attitudes.

Finally the teaching-material presented by the teacher could also create further possibilities for pupils to make their own choices and form their own opinions. It is evident that the production of such materials should meet strict requirements. Ideally teachers should develop their own, measured to the specific whishes and possibilities of a certain form. In practice this is unfeasible. We will return to this in the discussion of culture-critical curriculum development.

3. To a culture-critical view of educational geography

3.1. Geography as interdisciplinary field of knowledge

In culture-critical education the accent is on the effort to come to a constant broadening and deepening of the pupils' world of experience. This is done by motivating and enabling them to allow the weighing against each other of various interpretations of reality to determine ever more consistently their thinking and acting. Four of these were mentioned in the first part of this paper, the concrete aspect of the question how culture-critical education is related to existing school-subjects being deferred on purpose. Adoption of culture-critical education may entail a radical revision of school-structure in general and subject-organization in particular, but is not dependent upon them. In other words, the success of thorough innovations depends in the long run on the possibilities to adapt to the existing subject-organization.

In this paper, therefore, I concentrate on the realization of culture-critical views within the subject of geography.

In the subject of geography the central position is taken by the fact that the earth surface shows considerable differences in its physical features, and by the way in which man has managed to exist. Both are constantly changing. People continually evaluate natural conditions and anthropogeneous elements for their character as a constraint or a resource. The presence of an airport for instance creates problems (noise, congestion) for some people, whereas for others it means a valuable increase of their mobility. The same goes for a wood (reduction of agricultural area, possibilities for recreation).

The chief aim of geography-teaching could be the development of 'Raumverhaltenskompetenz' (Köck 1980). Pupils should develop the ability to judge in how far the whole of natural conditions and anthropogeneous elements contributes to the realization of their essential needs, and in connection with this in how far it is possible and permissible to change these conditions by individual or collective action.

Referring to what was put in paragraph 2, I think that this aim

may be reached by showing pupils that in principle spatially manifest phenomena may be explained with the help of various ways of approach, and 2) that during and after confrontation between them there may somtimes arise better ways of explanation than would be the case with each of them seperately. Assuming that my four ways of approach may be compared to Hirst's forms of knowledge, it could be concluded that I regard the subject of geography as a field of knowledge. In other words, geography is an interdisciplinary field of knowledge with the aim to interpret, put in question, and eventually change localized phenomena on earth's surface.

3.2. A closer look at the spatial aspect

To state that a phenomenon is localized means that its happening is typical of a certain place on the earth's surface. The fact that a phenomenon is localized is not very important in itself. But since there are many relations between them, the location of one phenomenon cannot but influence that of another. Traditionally geography has concerned itself with these spatial relations. Related physical phenomena can be regarded as 'systems'. Geography has always made a distinction between two forms of spatial relations or spatial systems. In the first place the accent is on the relation between (generically) heterogeneous phenomena, which leads to the coming into existence of regional entities that are to a certain degree unique. Secondly, interdependencies between phenomena in different places are thought important, for instance those existing between central places and periferous municipaliries.

In the first case it is a matter of relating to each other as many different types of phenomena as possible, and so gain a better insight in the identity of one specific area (or a type of area, e.g. 'reconstruction area'). In the second, physical patterns typical of a certain type of phenomenon, such as industrial distribution patterns and settlement patterns, are examined, often in a wider area.

Geographers have extensively studied these relations. In many case this led to a better insight in events en relations on a

local, regional or world level. Now the question is whether the knowledge thus accumulated can be structured, assuming its potential importance with regard to education. This structure should meet two requirements. In the first place it should be sufficiently detailed to fit questions pupils could ask. In the second, however, it should be global, so that it can be used as a point of departure for curriculum development. In the above, three dimensions for such a structure have been distinguished: 1) The nature of phenomena showing spatial patterns 2) The physical wholes created by the relation between a number of types of phenomena, and 3) The ways of approach in which spatial relations are interpreted.

3.3. A matrix for culture-critical geography-teaching

The first dimension could be regarded as a "thematic" divisions of spatial phenomena. The most important principle of divisions is whether a certain phenomenon is physical-biological or anthropogeneous. Anthropogeneous reality is further structured with the help of the 'Daseinsgrundfunktionen'. By way of intermediate category there has been inserted 'man and his existence', referring to the biological and demographic aspects of the existence of a men on earth. Figure 5 shows an example of a thematic division as meant here.

In effecting the regional division, it was assumed that in principle it is possible to study relations between diverse phenomena on any scale. However, for teaching purposes entities that can be considered the 'regional setting' of a pupil's life, are especially suitable. With respect to this it is possible to think of a series of spatial levels, varying from home, neighbourhood-street, village-town, region-province, country, part of the world, to world. The accent here is not in the first place on the development of concentric regional images, but on the distinction of regional 'types', though there is no objection to illustrating the nature of the relations relevant to a certain type with data from the domestic area of the pupil. Finally two ways of approach are mentioned again. With the help of these the various spatial relations are interpreted.

Figure 5. Thematic division of arrangement according to thematic aspects of reality.

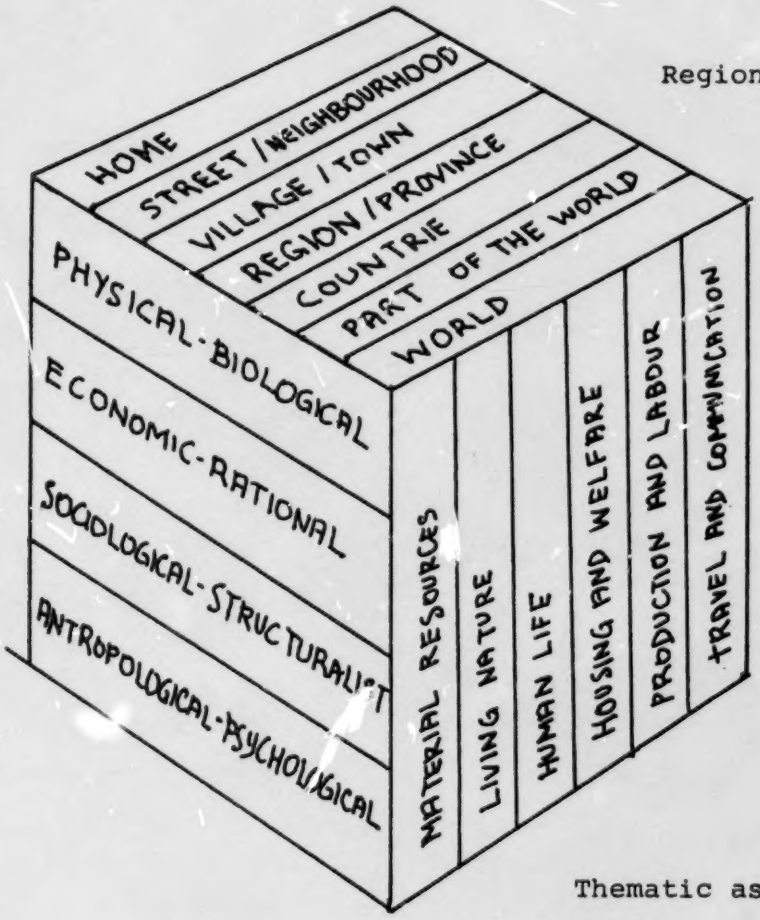
A. Material resources of the earth	- The earth in the solar system
	- Origin of the earth
	- Land-sea division
	- Geological structure
	- Earthquakes and other natural hazards
	- Climate and weather
	- Formation of the soil
B. Living nature	- Development of plant and animal life
	- Zones of vegetation
	- Spread of animal life
C. Human life	- Origin of human life; population
	- Diffusion of human life; races
	- Life in groups
	- Wars and conflicts
	- Movements of population
D. Housing and welfare	- Housing provision
	- Provision for daily needs
	- Public utilities
	- Schools
	- Medical care
	- Art, cultural facilities
	- Churches and other religious facilities
	- Recreation, holidays
E. Production and labour	- Collection
	- Agricultural sector
	- Raw materials
	- Energy
	- Industry
	- Commerce
F. Traffic and transport	- Roads
	- Railways
	- Air-routes
	- Telecommunication

Thus in a economic-rational way of approach houses, shops, schools etc. are seen as parts of a cycle, the purpose being, given fixed aims ans scarce resources, to indicate now it can be organized best,in other words to find the best place in it for each of the various elements. Moreover, this way of approach can provide alternatives to different systems of aims on different spatial levels (e.g. town quarter and part of the world). The social structuralistic way of approach, on the contrary, looks for spatial relations of power. Reality is seen in terms of equality and inequality, dependence and independence, and the stagnation or development of towns and villages, for example by the establishments of industry, is seen in the light of the (diverse) interests of different groups of people.

It is from the dimensions distinghuished that the matrix of figure 6 may be inferred. We will illustrate the contents of a culture-critical way of approach with the help of an example: agricultural policy in The Netherlands. Suppose Dutch agricultural policy is to judged. It is established that there is a continuous increase in scale of production, which those concerned justify on the grounds of economic necessity. To approach this in a culture-critical way means that the phenomenon of large-scale agriculture is re-interpreted with the help of other ways of approach. Application of the physical-biological way of approach introduces the aspect of environmental effect. The agricultural problems are related to totally different phenomena, such as ground water pollution, bird mortality, unhealthy food, and so interpreted anew. Application of the social-structuralistic way of approach introduces other aspects again, such as the relation to processing industry (growing crops on contract) and the resulting dependence of the farmers of the banks. Finally, application of the anthropological-psychological way of approach could show that there is a close relation between adopting large-scale modes of production and possessing an extravert personality. In this way step by step new relations are introduced and the original (economic) assumtions provided with clauses, amended, or rejected.

Before the introduction of culture-critical analyses the problem of the increase of scale coul easily be indentified in one

Fig. 6. Outline of a geographical system of knowledge



of the sections of the above matrix. After this analyses new relations have become visible within each of the dimensions. It appears that agricultural production is closely bound op with industrial production and consumer demands; developments in the Netherlands appear to be strongly connected with those of the rest of Western Europe, and it appears that what seemed to be economic-rational can only be understood if other ways of approach are taken into consideration as well.
This example may also serve to illustrate the possible use of the culture-critical way of approach with regard to education. The ideal-typical final result of a culture-critical process of education could be a person's willingness and ability to (re-) interpret all existing situations. While searching for a more or less final opinion. In the last paragraph I intend to deal with problems that have to be overcome at the introduction of culture-critical education.

4. To a culture-critical educational practice

4.1. The role of teaching material

In the above was given the rough framework of the selection of contents in culture-critical education.
Education was presented ideal-typically as a process of negotiation between teacher and pupil. The pupils make clear their experiences, questions and preliminary knowledge and the teacher offers his of her programme, based on the examination-syllabus, the existing curriculum, and in our case also a culture-critical view of educational geography.
The realization of culture-critical research demands that two conditions be fulfilled: 1) The adaption of educational contents to the pupils' needs and demands; 2) A culture-critical way of treatment of the themes chosen. It appears from the nature of these conditions that the introduction of culture-critical education does not just depend on structural changes of education preceding it, such as for instance breaking through tha barier of existing subjects. Many teachers, however, already practise versions of culture-critical education, sometimes for example in the form of project-teaching.
There are also a number of teaching projects available, aiming at stimulating pupils to form their own opinions as regards problems of various nature.

The above conditions may not agree very well. For instance, it appears that in project-teaching it is sometimes difficult to deepen out the problem chosen by the pupils due to a lack of material or expertise on the part of the teachers. Teaching projects, on the contrary, often have sufficient weight, but in a number of cases are fixated too strongly on their 'message', which couls lead them to ignore pupils' questions.
Culture-critical education will have to avoid such pitfalls by thorough preparation on the part of the teachers and provision of adequate teaching material. Now I would like to elaborate on the nature of this material. When the curriculum development movement was at its zenith in the sixties, a great number of multi-medial projects entered the market. They quickly gained a reputation of being 'teacher-'proof' because of their low flexibility, but which was increasingly considered a drawback. Especially supporters of 'open education' were sceptical with respect to such projects. They were of the opinion that their production should be in the hands of teachers and pupils themselves as much as possible, preferably making use of 'real-life' objects. In practice, however, generally teachers prove to be too much burdened to be able to do this. From necessity therefore, in most cases they fall back on prefabricated material, such as the school-books.
It is only realistic to admit that culture-critical education has not much of a chance, if there is prefab material available. But it will have to meet a certain number of requirements. The pupils' contribution towards the making and carrying out of year programmes, advocated above, can never be in accordance with prefab cursoryteaching. Therefore, instead of multi-medial projects, we would rather have multi-purpose data collections, such as have been produced for the benefit of the 'Humanities Curriculum Projects'. Continuing along these lines, it should be stated that the amount of material available should be greater than would be sufficient for one year, and that the material itself should be rather open.
On the other hand, in producing this material, less attention had to be paid to the age and or intellectual level of the target- group than is the case with cursory lesson units.

Therefore, in opposition to the necessity to dispose of a surplus of material the fact stands that various annual classes of pupils can make use of it.

As the arrangement of the teaching situation is based less directly on the teaching material, the success of a lesson (or series of lessons) depends more strongly on the active attitude of the teacher than is the case with the more traditional forms of education. The presence of a teacher's manual, then, is important in two ways:

1. As a framework for subject contents, i.e. in order to explicit which insights pupils may acquire by performing certain tasks and such, and
2. As a pedagogical-didactic framework, i.e. as a source of instructions for the use of the material in diverse situations and with pupils of various intellectual levels and/or age.

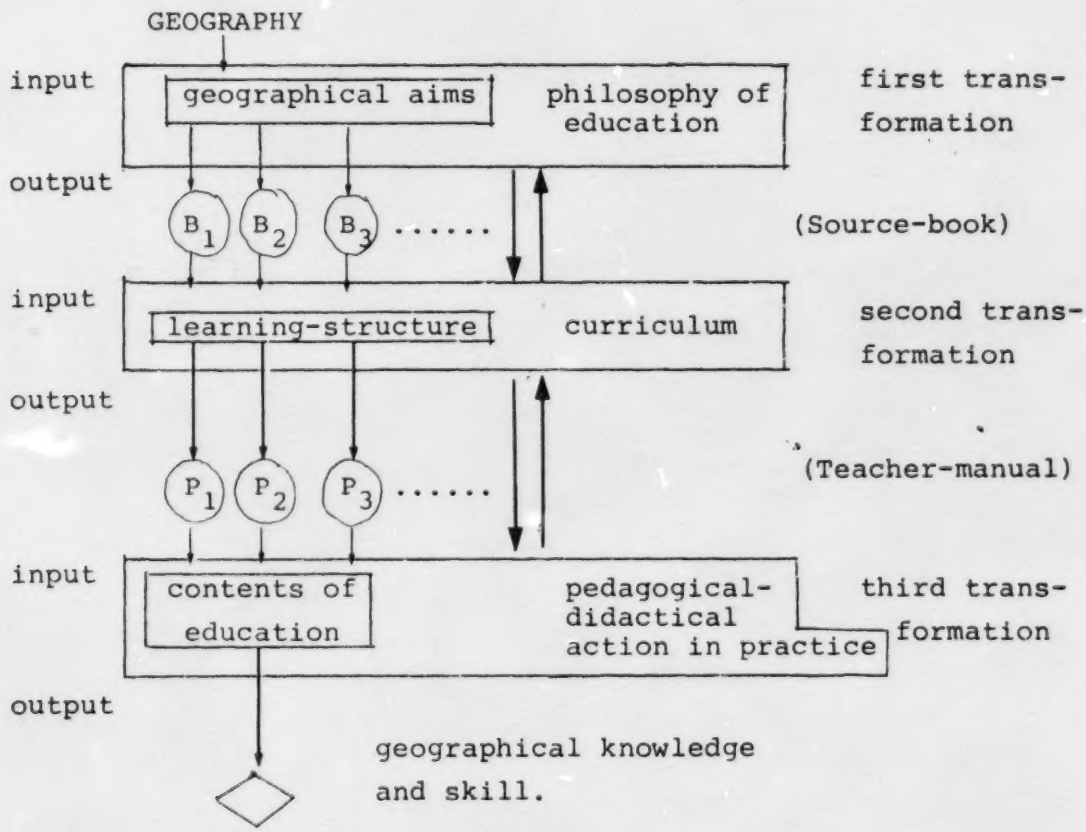
A further question that might be asked with respect to this concerns the nature of the contents of the material presented. In the matrix of culture-critical educational geography described above, the spatial dimension of existence was divided with the help of categories supposed to be suited to the classification of pupils' questions and interests. This is why these categories are taken as points of departure for the production and arrangement of teaching material. In the first instance separate lesson packages can be produced, starting from one category to one or two spatial dimensions (for instance housing in general, or housing in town), of course seen from various ways of approach. It is also possible to imagine a package in which one way of approach is compared with another. (Thus in the project, 'Underdevelopment in the Third World, for instance Latin America' a confrontation between the economic-rational and the sociological-structuralistic ways of approach takes up a central position. After some time the considerable overlap may cause the creation of one all-enclosing system of teaching material and supporting manuals. We have already spoken in favour of adapting such a system to a rather homogeneous group and realizing internal differentiation through the way in which teachers make use of the material. In developing such systems it might be a good thing to use the following age groups: 4-8 yrs.; 8-12 yrs.;

and 15-18 yrs. Each of these systems could be based on a variant of our matrix of educational geography suited to the possibilities of the group in question.
The development of this kind of system should be undertaken by groups of teachers in conjunction with organizations furthering the cause of education, including sections such as ours.

4.2. The contribution of the educational geography section of the University of Nijmegen.

The further development of the view described above and its realization in educational experiments need the permanent support of scientific research. To these our section can make a contribution. In figure 7 the natur of this contribution is related to eductional research and development in general.

Figure 7. Educational development model



This figure is based on the abovementioned statement that the 'input' of the process of development is formed by 'cultural goods', in our case geography. Which knowledge, insights and skills are selected from it and in what way pupils come into contact with them, is determined by means of the philosophy of education. The philosophy of education is realized withing the curricula, adapted to different target-groups. These curricula are the points of departure for pedagogical-didactic action. The development of education should be understood as a cyclical process, which means that there exist feed-back mechanisms between the levels distinguished above. The educational geographer is primarily interested in the aspect of selection of contents on each level.
In the first instance what matters is to come to an all-embracing view of the contribution of geography to the achievement of educational aims enclosed in the philosophy of education. It is especially in this area that this paper makes a first start, and its further development can be considered the main task of our section. The contribution of geography can be realized partially, i.e. for separate parts of geography, for instance in the form of 'source-books'.Expressly these do not yet contain instructions as to pedagogical-didactic action in the target group (first transformation).

On the level of curriculum development, on the contrary, statements should be made as to the way in which more general aims might be realized in educational situations. On this level the characteristics of target-groups of various nature are taken into account when dealing with, among other things, the areas of entering-situation, interest, school-situation, social position etc. This is an enormous task, which can only be performed piecemeal, for instance by means of research within groups of varying size (e.g. one form or all first forms of a school) during a longer or shorter period of time (e.g. a lesson-cycle or a year programma). This research will have to lead to statements as to the way in which certain geographical views should

be structured and presented for the benefit of variously natured target groups. On this level the contents of the 'source-book' are transformed into instructions and aids for pedagogical-didactic action, i.e. teacher manuals. A teacher manual therefore contains 'curriculum modules' in the form of learning materials for pupils, surveys of audio-visual means, provided with good instructions (second transformation).

The manual plays a role in shaping the learning situation, in direct relation with the contribution of the pupils. Here there is question of a third process of transformation, in which the curriculum modules presented eventually come to function for each form, perhaps even for each pupil seperately. The output of this transformation is a change in behaviour of the pupil, perceptible or inperceptible, in the broadest possible sense. A third series of tasks for our section is the determination of such changes, the making of statements as to their being in accordance with the general (culture-critical) aims, and finally judging the effectiveness of the teaching materials developed and their application in various learning situations.

5. Summary

1. Introduction

The educational geographic section of the University of Nijmegen wishes to develop a culture-critical philosphy of education which might also be used as a basis for its educational and research activities.

2.1. Image of man and philosophy of education

Traditionally educational thinking has always known opposition between those stressing, the (unique) intellectual character of man and those who start from the fundamental similarities of functioning between man and animals.
This opposition is run through with the conflict between those that primarily attribute development to learning and those favouring as its cause the development of inborn possibilities.

2.2. A pluriform theory of learning

Learning is a collective term for a series of diverse human activities. It should be the main concern of education to develop further pupils' cognitive structure by means of the learning of rules, concepts and theories, in contrast to stressing the memorizing of facts.
Scientific disciplines provide such hierarchical and tested conceptual complexes and therefore have great pedagogical relevance.

2.3. Accent on man as a whole

There need not be any conflict between learning and the development of genetically determined possibilities. In higher animal species and man himself the way in which needs can be satisfied is to a high degree acquired by learning.
In this process human learning is mostly cognitive (see above).
Learning contents can give rise to feelings of agreement or rejection depending on whether they are in accordance with the needs of the person who learns. Therefore the curriculum developer should bring the learning contents

into agreement with the supposed human needs.

2.4. Learning and alienation

Manifest human needs may differ from those supposed to be 'true', for instance on the basis of Maslow's theory. Displacement or defense mechanisms play a certain role in this. It is these that preserve individuals from conflict with their environment, and therefore in a number of cases are of social origin. See for example the problems concerned with the Marxist concept of ideology. On those grounds it is not right to state that education should (exclusively) start from the needs of the pupils. Pupils' manifest needs should permanently be confronted with views originating from the theoretically supposed true ones. This is why we regard education as a dialogue or process of negotiation between teachers and pupils.

2.5. Scientific knowledge and human needs

The body of (scientific) knowledge accumulated in the course of time could also be seen as the result of people's reflections on their needs and the satisfaction thereof.

Scientific knowledge of reality is marked by a number of diverse ways of approach, in each of which the central position is taken up by a certain value judgement. We suppose that there is a relation between these ways of approach and the various human categories of needs. Education should familiarize pupils with the different interpretations of phenomena and not merely go into the manner in which these interpretations are applied in western culture. Pupils should gradually learn to see the interpretation of reality as a result of the confrontation between a number of ways of approach (culture-critical education). By not providing pupils with a finished picture of reality, they can create one of their own, which does justice to their needs as adequately as possible and/or enables them to discover the causes that prevent them from being satisfied.

2.6. Points of departure for culture-critical education

In culture-critical education the contribution of teachers and pupils is considerable, each from their own background and position.
Actual classroom practice therefor is the result of a series of (ordered) processes of negotiation.

3.1. Geography as a interdisciplinary field of application

Geography concerns itself with the spatial existence of natural conditions and anthropogeneous elements and the influence they have on each other. To individual people and to groups these conditions and elements have a constraint and resource character. Their existence and function can be explained with the help of different ways of approach. For this reason it is possible to state that the subject is an interdisciplinary field of knowledge aimed at the interpreting, putting in question and eventually changing of localized phenomena on the earth's surface.

3.2. A closer look at the spatial aspect

Ideal-typically spatial relations between phenomena occur in two ways. In the first place between generically heterogeneous phenomena, based on which there are regional entities with, to a certain degree, a character of their own, and in the second between more homogeneous phenomena in different places, to which it would be possible to attribute spatial patterns.

3.3. A matrix for culture-critical geography-teaching

The aim of geography-teaching could be described with the help of a three-dimensional model, the dimensions being:
1) The nature of phenomena showing spatial patterns;
2) The spatial wholes, created by the relations between various types of phenomena, and
3) the ways of approach in which spatial relations can be interpreted.
With the help of this matrix the questions and interests of the pupils can be classified and curriculum-development structured.

4.1. The role of learning material

For the benefit of culture-critical education data collections should be established for flexible use in (groups of) pupils differing in age and other characteristics.
An elaborate teacher's manual should guide the use of these 'curriculum modules'.

4.2. The contribution of the educational geography section

As regards contents, the scientific foundation of the process of curriculum development contains three tasks:
1) The expliciting and realization of the educational value of geography
2) The development of curriculum modules for categories of pupils of various nature, and
3) evaluation of the effect of culture-critical education and especially the effectiveness of the available curriculum modules.

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